



Figure 1



| Name | Chemical Formula |
|--|---|
| Styrylpyridinium cyanine dye (SPCD) | <chem>CN(C)c1ccc(/C=C/c2cc[n+](C)c2)cc1.[O-]S(=O)(=O)C</chem> |
| 4'-dimethylamino-N-methyl-4-stilbazolium tosylate (DAST) | <chem>CN(C)c1ccc(/C=C/c2cc[n+](C)c2)cc1.[O-]S(=O)(=O)c3ccc(C)cc3</chem> |
| 4'-diethylamino-N-methyl-4-stilbazolium tosylate (DEST) | <chem>CCN(CC)c1ccc(/C=C/c2cc[n+](C)c2)cc1.[O-]S(=O)(=O)c3ccc(C)cc3</chem> |
| 4'-dimethylamino-N-methyl-4-stilbazolium iodide (DASPI) | <chem>CN(C)c1ccc(/C=C/c2cc[n+](C)c2)cc1.[I-]</chem> |

Figure 11



FIGURE 12

| Abbreviated Name | λ_{peak} (nm) | Linewidth (nm) | Conversion Efficiency (%) |
|---------------------|---------------------------------|-------------------|------------------------------|
| SPCD | 620 | 10 | 40 |
| DAST | 610 | 9 | 35 |
| DEST | 617 | 14 | 20 |
| DASPI | 616 | 10 | 40 |



FIGURE 13

| Material | Solvent | λ_{pump} (nm) | λ_{PL} (nm) | PL % Efficiency | Energy Threshold ($\mu\text{J}/\text{pulse}$) | Final Linewidth (nm) | Conversion Efficiency (%) |
|--|------------------------------|---------------------------------|-------------------------------|--------------------|---|----------------------------|---------------------------------|
| DTTC ^a (ref. 1) | Methanol | 694 | 798 | >50 | - | 13-18 | 3 |
| Coumarin 47 ^b (ref. 2) | Ethanol | 355 | 451 | >70 | 200 | - | 2.8 |
| Coumarin (ref. 2) | Ethanol | 355 | 439 | 72 | 200 | - | 2.3 |
| TOP-PPV ^b (ref. 2) | Hexane | 355 | 449 | 80-90 | 100 | 7 | 6.8 |
| MEH-PPV ^b (ref. 3) | Xylene/ CHCl ₃ | 532 | 600 | large | 180 | 7 | 0.5 |
| DCM ^a (10 ⁻³ mol/l) | Methanol | 532 | 641 | 60-70 | 8 | 10 | 25 |
| R6G ^a (10 ⁻³ mol/l) | Methanol | 532 | 570 | ~70 | 1.5 | 10 | 30 |
| SPCD ^a (0.1 mol/l) | Methanol | 532 | 620 | 0.3 | <1 | 10 | 40 |

^aMeasured without any external mirrors.

^bMeasured with an external resonator cavity.